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## P R E F A C E.

EVERY attentive Reader of the following pages will find, that the Society for the Encouragement of Arts, Manufactures and Commerce, have this year, in pursuance of their plan, offered several new Premiums, some of which it may not be altogether improper or unnecessary to enumerate. As, under the head of AGRICULTURE, it had been suggested in a letter from an ingenious correspondent, which is inserted page 210, that the growing of Oak Timber in Compass-Forms for the use of Ship-builders, would tend very much to the advancement of their Art, and be of great benefit to the Navy of this country; a Premium has been offered for discovering

the most proper and advantageous method of obtaining wood, in the proper shapes, for the purpose intended, and which, there is good reason to believe, will hereafter be attended with very beneficial consequences to the nation at large.

Another new object of the Society's attention has been the carrying into effect, what was suggested in some former volumes of these Transactions ; the improving the standing Fruit-trees in the Orchards of this kingdom. For this purpose, several Premiums are now offered (see Class 74 et seq.) ; and it is hoped, that when the wishes of the Society on this subject shall be realized, not only the state and appearance of the Orchards, in different parts of this country, will be much amended, but the Fruits themselves highly improved, and the business of the orchardist so arranged and settled, that a succession of fine Fruit may be effectually secured.

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The great scarcity of Grain, which unfortunately has taken place in every country in Europe, has occasioned the Society to turn their thoughts towards such plants as may be most likely to furnish what might, in some degree, supply the place of Bread-corn: to this purpose, the Potatoe seems best adapted; and in order, as much as lies in the power of the Society, to forward an increased cultivation of that excellent plant, some new Premiums are this year offered, (see Class 96, 97) which, if effectually attended to, will probably be followed by some very considerable advantages to the Public in general, and to the industrious and laborious poor in particular.

In some parts of the kingdom, the practice of dibbling wheat has been carried to a considerable extent, and, as has been said, with many material advantages. Premiums have for several years past been offered by the Society, though hitherto without any claimants appearing for them, to ascertain the

comparative advantage of cultivating Wheat, by sowing it in the broad-cast way, or dibbling it in equidistant rows, hoeing the intervals (see Class 84). And this Session, a Premium has been first offered for constructing a machine for dibbling corn, by which, if a simple machine, well adapted to the purpose, can be obtained, the price of labour in getting the seed into the ground, which has hitherto been considered as the principal objection to the practice, will be effectually obviated.

Under the head of CHEMISTRY, a new premium has this year been offered, for discovering a cheap and effectual method of purifying brackish Water, in new-made Wells, so as to bring it speedily into a fit state for the use of families. See Class 175.

It has already been observed, that the scarcity of Bread-corn, which has unfortunately taken place throughout all Europe, has induced the Society to endeavour to increase

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crease the culture of that vegetable (the Potatoe) which seems best adapted to supply the place of wheat, as food; but there is another great consumption of that grain, which the Society has endeavoured to lessen, by offering a Reward for making Starch from the Fruit of the Horse-chefnut, under the head of Manufactures. As this fruit is considered of very little, if any, use; and a small quantity of Starch, in fine powder prepared from it, has been produced to the Society; it has been judged a fit object for their attention; and accordingly, the premium, Class 207, has been offered. But, although a caution is given in the *Nota bene* subjoined to that advertisement, warning all persons who are not duly licensed starch-makers, from making any experiments on that subject, yet it may not be improper here again to mention, that the laws of excise are so severe on this head, that people cannot be too cautious how they infringe them, by attempting to make starch of any material, or in any manner or place, unless strictly

conformable to the several Acts of Parliament in force on that head.

When so many persons are employed in the mineral countries of this kingdom, in search of the ores, &c. with which it abounds, every attempt to lessen the expence and labour of the proprietors and workmen must be judged laudable: it is for this reason that, under the head of Mechanics, Class 224, will be found a Premium for discovering a cheap and more expeditious method of Boring Rocks in Mines than any now in practice; and to every one acquainted with the difficulty which frequently attends this operation, and the necessary charges incurred to the proprietors thereby, the endeavouring to obtain a more effectual mode of conducting this kind of work, will be considered as an object of very material importance to some of the most extensive concerns in this country.

Having

Having thus enumerated the principal Premiums, which have not before this Session been offered by the Society; there only remains to say on this head, that, in order still further to encourage ingenuity, and to reward useful attention and desert, the Society have this year added to their former rewards, several honorary Medals, and also increased, in many instances, their pecuniary Premiums; hereby shewing their determined intention to fulfil, by every means in their power, the views of their institution.

Among the several letters and papers inserted in this Volume, will be found an account of the planting Acorns, by Samuel Kilderbee, of Ipswich, Esq. with some judicious remarks on that subject. Accounts also of the plantations of Osiers, by Lord Brownlow, John Phillips, Esq. and Samuel Crawley, Esq. are introduced; and here it may be highly proper to mention the occasion that gave rise, in the  
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Society, to the offering Premiums for increasing the Plantations of Osiers in this country.

Application was made to the Society, in the year 1794, by many of the principal Basket-makers in and about London, saying, that, from the want of Osier-twigs, great numbers of the working people were thrown out of employment, and the whole of their business almost at a stand. On enquiry, it appeared, that great quantities of these twigs had annually been imported from France; and all intercourse with that country being stopped, a sufficient quantity, the growth of England, could not be obtained: this induced the Society to offer such Premiums as, it was thought, would be sufficient and proper to encourage the further growth of that useful plant in our own country; more especially as it appeared, from the evidence produced, that the culture of the proper kind of Osiers on land well adapted to their growth, was likely

likely to be very advantageous to the planter. And the event has fully justified the Society in their procedure; for it now appears, that not only a much larger quantity of Osiers, the growth of England, has been within these two years brought to market; but there is reason to believe, the plantations are every where, on proper soils, increasing; so that, in time, all necessity of importing them from foreign countries will cease; and this will be more evident, when the great profit of such plantations becomes more generally known.

One of the most favoured objects of the Society's attention, the planting Timber-trees, has this session been gratified, by the account of the plantation made by Thomas Rawlinson, Esq. and this on land which, from its high and exposed situation, as well as from the immense rocks of lime-stone that every where covered its surface, was not till very lately considered as meriting the attention of a cultivator; but which,  
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from the present state of the plantation, promises not only to be highly ornamental to the neighbouring country, but in due time very advantageous to the proprietor.

The papers of Mr. Henry Harper and Mr. John Jenkinson, will, it is presumed, afford much useful information on the subject of improving Waste Land; and as the two sorts of soil improved by these gentlemen differ most essentially from each other, the Public cannot fail of profiting by the observations made in the two Papers, as well as by those of Mr. Middleton, as given in his letter on an improved course of Crops on Strong Land.

The samples of Rhubarb, grown and cured by Mr. Ball, of Williton, now give full assurance, that that useful drug may be cultivated and cured in England equally well as in any other climate or country whatever.

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The preparing White Lead, of which very large quantities are employed in painting, glazing, &c. being a chemical operation, there is inserted in this Volume, under the head of Chemistry, a plate and full description of a method of preventing the ill effects of the dust which arises in manufacturing the white lead, and is constantly so injurious to the workmen ; and there is every reason to believe, that if the method here shewn is generally adopted and carried into execution, the far greater part of the danger to which they are exposed will be removed. It may not be amiss here to mention, that the securing the health and lives of those workmen who are engaged in mineral works, and who, from the nature of their employment, are subject to be injured by the fumes or dust to which they are necessarily exposed, has ever been considered as highly deserving the Society's regard : hence, some years since, a reward was bestowed, for the discovery of an apparatus, to prevent the mischief

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chief arising to Water-gilders from the fumes of the quicksilver employed by them. Of this apparatus a complete model remains in the Society's Repository, for the inspection of the Public, as well as one, shewing the method invented by Mr. Ward, and practised by him, for securing the workmen in the manufacturing of white lead.

Under the head of MANUFACTURES is inserted, in this volume, an account of a further improvement in the construction of the common Spinning-Wheel, by Mr. John Antis (see his former account, Vol. II, page 157): by the change of some parts of the mechanism, those inaccuracies, that, from the construction of the pinion, arose in the movement, are effectually obviated; the friction of the whole machine considerably abated; and the mode of adjusting the velocity of the bobbin to the quantity of thread thereon, rendered more accurate; the general principle of moving the bobbin backward and forward, so as to lay  
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the thread on it equally smooth from end to end, being still retained; and by the introduction of the heart-shaped movement, the whole operation is carried on with much more exactness and precision than in any that have hitherto been produced to the Society.

As, on the improvement of mechanical Engines, the advancement of the Manufactures, and ultimately the Arts and Commerce, of the Kingdom, must in a very material manner depend; the Society have, from the time of their institution, invariably endeavoured, by every means in their power, to bring forward to public use and notice, all such machines as have a tendency to promote that end: from this has arisen the great number of Machines and Models, that are reserved in their Repositories, which being open to the free and uninterrupted examination of all persons, it is well known great advantages have arisen, as well to the ingenious workmen, as to the learned

and scientific observers: and from hence, although the far greater number of these machines and models, being the first thoughts of the inventors, are not in such perfection as they have been brought to by other ingenious persons who have inspected them; yet they have undoubtedly served the purpose intended by the Society, of furnishing hints for the improving and perfecting the Mechanick Arts in this Country; and of this many instances are well known. In pursuance, therefore, of the intention of the Society to afford encouragement to all useful contrivances in the line of Mechanicks, it will be found by the following papers, that a Reward, under this head, has this session been given to Mr. John Foulds, for his improved method of cutting Piles under Water, which, in the opinion of several of the best-informed persons in this country, is new, ingenious, and well adapted to the purpose intended; and of which a Plate and Description are inserted in this volume;

and the model is also reserved in the Society's Collection.

Whoever considers the solid advantages that have arisen to the world at large, by the discovery of Printing, whereby learning and knowledge have been disseminated in a manner unknown in former ages, will readily agree, that every attempt to bring so valuable an art to the highest degree of perfection it is capable of, deserves the most serious attention and liberal encouragement ; and in the following pages will be seen a plate of an improved Printing-press, by Mr. Joseph Ridley, with a description of it : as the construction of this machine differs very essentially from those hitherto used for the same purpose, it will be highly acceptable to the Society, should any one adopt presses of this construction, to receive some well-authenticated accounts of such further improvements (if any are thought necessary) as may be made in them, and of the advan-



tages that may result to the Art of Printing from the use of them ; should any person wish for further information relative to the mechanism of this press than is to be found in the following pages, a working model is reserved in the house of the Society, which may at any proper time be inspected.

Here, too, will be found a plate and full description of a new-constructed Churn, and a Drag for two-wheeled Carts; both of which have, on trial, answered the intentions of the inventors.

In the other Classes, into which the business of the Society is divided, no papers have this session been received that have been judged proper for publication ; but it may not be unsatisfactory to the Public to be informed, that in a letter from the Island of St. Vincent, addressed to General Melville, (†) and by him communicated

(†) The Botanical Garden, in the Island of St. Vincent, was founded in the year 1765, by Gene-

cated to the Society, there is the following passage : “ General Melville will have  
“ much pleasure to hear, that the Bread-  
“ fruit trees flourish so surprisingly in the  
“ Botanic Garden, that one tree has  
“ brought two of the fruit to maturity,  
“ and several more are bearing. They far  
“ exceed our expectation in delicacy of  
“ taste (†); are throwing out many suckers,  
“ and in a few years will be as plentiful as  
“ in Otaheite. Many other plants, brought  
“ by the Providence, Captain Bligh, have  
“ produced flowers and fruit ; but, next to  
“ the Bread-tree, the Chestnut appears to  
“ be the most valuable.”

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ral Melville, when he was his Majesty's Governor  
in Chief of St. Vincent, and the other ceded islands  
in the West-Indies.

(†) By a subsequent letter it appears, that the trial  
of the Bread-Fruit above alluded to, was made, by  
eating it at the Governor of St. Vincent's public  
dinner, to celebrate Her Majesty's birth-day on the  
18th of January last.

In the Twelfth Volume of these Transactions, page 305, a full list of the several plants conveyed by Captain Bligh to the Islands in the West Indies is given ; and it is with singular satisfaction the Society observe, that after an interval of seventeen years, during all which time Premiums for the introduction of the Bread-fruit were offered, that desirable object has at length been obtained ; and it is now only to be hoped, that the disturbances that have arisen in some of those islands will not injure so valuable an acquisition.

Still further to promote the interests and welfare of the inhabitants of those climates, the Society have now thought proper to offer Premiums for the culture of that tree (see Class 229), which there is every reason to believe will in time become of the greatest benefit to the people in the islands of the West Indies.

Having

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Having thus expatiated pretty fully on the contents of the present Volume, it is no further necessary to lengthen this Preface, than to observe, that the print of the statue of Narcissus, which forms the frontispiece to the book, is executed by Mr. Isaac Taylor, from the cast of that statue, presented to the Society, by John Bacon, Esq. R. A. after a drawing by Mr. John Thomas Barber, for which the Silver Medallion was adjudged to Mr. Barber, in conformity to the will of the late John Stock, of Hampstead, Esq. (see page 270.) The remainder of the Plates, which are more in number than in any preceding Volume, will, it is hoped, sufficiently explain the several Models, &c. they are intended to represent; and nothing, therefore, further need be observed concerning them.

As the state of the Finances of the Society are such as to enable them to prosecute the intention of their institution, and reward any merit that may come before

them ; all ingenious persons are invited to produce to the Society, such works as may have a tendency to improve the Arts, the Manufactures, or Commerce of the kingdom, which will not fail to meet such encouragement as they may be found to deserve ; and thereby the Candidates will obtain honour and profit to themselves, with the solid satisfaction of having been the means of promoting the good and welfare of their native country, by contributing to the only permanent support of it.